(No Model.)

P. HIEN.

CAR COUPLING.

No. 571,044. Patented Nov. 10, 1896.

Fig. 1.

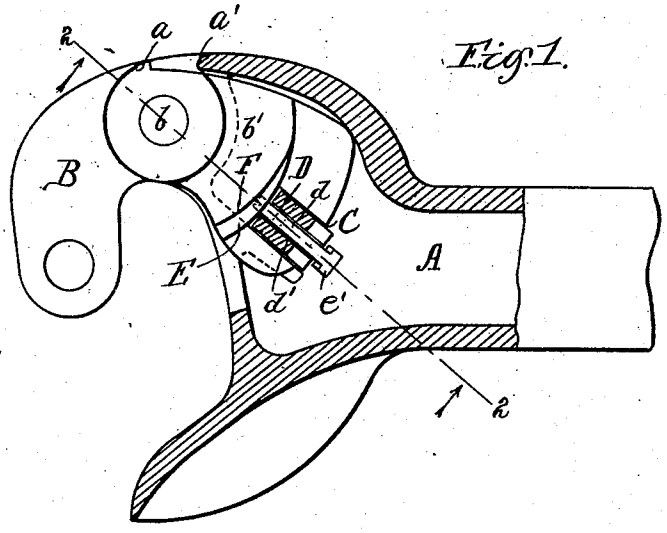


Fig. 2.

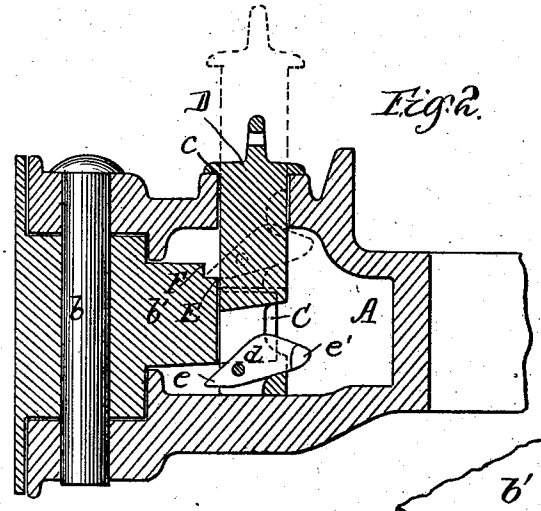


Fig. 3.

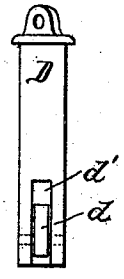
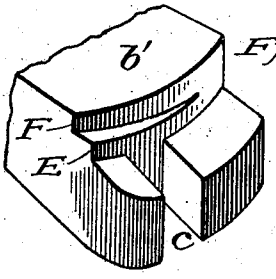


Fig. 4.



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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 571,044, dated November 10, 1896.

Application filed January 21, 1896. Serial No. 576,274. (No model.)

To all whom it may concern:

Be it known that I, PHILLIP HIEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to certain new and useful improvements in car-couplings, and particularly to that type of coupling which is adapted to be arranged in position for uncoupling at any time and then be in position for automatic coupling when two cars are brought together.

The object of my invention is to provide a coupling which is arranged in position for automatic coupling during the operation of uncoupling.

Another object of the invention is to provide means for releasing the locking parts of the coupling, so that the cars may be separated at any time and the coupling arranged in position for automatic coupling.

A further object of the invention is to provide locking devices which can be released without separating the cars and which may be operated without the necessity of the trainman going between the cars; and further objects of the invention are to provide a locking device which will automatically adjust itself in an unlocked position when elevated, which will during the uncoupling operation automatically arrange itself in position to lock the coupling when two cars are again brought together, and which is located in such a position that it will disclose the fact that the coupling is in an unlocked position when the locking device has been properly adjusted.

In the accompanying drawings, Figure 1 is a horizontal sectional view of my improved coupling, showing the location of parts in the coupling when the coupling is in a locked position. Fig. 2 is a sectional view on the line 2 2 of Fig. 1, showing the locking device in full lines in its locked position and in dotted lines in the position which it assumes after being unlocked. Fig. 3 is a detail view of the locking device. Fig. 4 is an enlarged detail view of the end of the tailpiece.

Referring to the drawings, in which like letters of reference denote corresponding parts in all of the figures, A designates a coupling-head, and B a knuckle which is pivotally secured at one side of the coupling-head by a pin *b* and provided with a tailpiece *b'*. The knuckle is provided with a shoulder *a*, which is arranged to engage with the edge *a'* of the coupling-head, and thereby limit the outward movement of the knuckle during the operation of uncoupling.

The tailpiece is arranged to operate in the usual manner in an opening in the face of the coupling-head, and it is provided with a socket C in its end, which operates under and registers with an opening *c* in the top of the coupling in such a manner that the locking device, which comprises a vertically-operating pin D, may drop by gravity into the socket C when the tailpiece has been thrown back to its rearward position.

The locking device consists, substantially, of a pin, substantially rectangular in cross-section, but the particular configuration of the pin is not absolutely essential. A dog *d* is pivotally secured in a slot *d'* in the lower end of the locking-pin, and it is adapted to engage and rest upon a shoulder E on the tailpiece when the locking-pin is raised to hold the locking-pin in this elevated position out of the socket C in the tailpiece. The dog *d* is eccentrically pivoted in the slot *d'*, and one end thereof, *e*, which is adapted to engage the shoulder E, is preferably reduced substantially to a point for the purposes of better operation, while the other end is provided with an enlargement or weight *e'*, which normally tends to throw the pointed end *e* of the dog out of the slot *d'*. The opening *c* in the top of the coupling-head is of such a size that the locking-pin will operate easily therein, and it will be impossible to withdraw the locking device because the ends of the dog, which normally project beyond the sides of the locking-pin, will engage the walls of the opening *c* and prevent the pin from being withdrawn. When the coupling is locked and the locking-pin is raised, the dog, coming into contact with the tailpiece, will be forced into a position within the slot; but just as soon as the pointed end *e* of this dog rises above the edge of the tailpiece the weighted

end e' of the dog will cause the dog to assume its normal position again, so that it cannot possibly be withdrawn through the opening c.

The shoulder E on the tailpiece is described on an arc with the pivot-pin b for a center. A cam-face F is provided above the shoulder E for a portion of its length, and it is so arranged and constructed that the end e of the dog, which is engaged with the upper side of the shoulder when the locking-pin is raised, will gradually become disengaged from the shoulder as the tailpiece moves out of the coupling-head, until it finally assumes a position against the vertical face of the shoulder, at which time the end e of the dog is substantially in a position within the walls of the slot d', so that the coupling-pin will readily drop by gravity into the socket C of the tailpiece, when the latter is thrown back into the position which it occupies when the coupling is locked.

The operation of the device is very simple and will be easily explained in view of the foregoing description.

Assuming that the coupling is in the locked position illustrated in Fig. 1 and in full lines in Fig. 2 and it is desired to unlock the coupling, the locking-pin, which may be operated by a chain or lever connected thereto in any well-known manner, is raised until the dog engages the shoulder E. The locking-pin will remain in this position until the cars are separated, thus disclosing at once to an observer that the coupling is in an unlocked position, because, as a matter of fact, the coupling is unlocked before the cars are separated. As the cars are separated the tailpiece moves out of its position in the coupling head and the pointed end e of the dog rides on the shoulder E of the tailpiece and against the cam-face F until the said cam-face throws the dog off of the shoulder E into a position against the vertical face of the shoulder, at which time the said dog is wholly or partly housed within the slot d' and the locking-pin drops and rests upon the upper face of the end of the tailpiece adjacent to the socket C. The vertical side of the shoulder E forms the upper portion of one wall of the socket C, and therefore the dog will not operate to hold the locking-pin in an elevated position until the point has been raised sufficiently to enable the end e of the dog to engage the upper side of the shoulder E. The coupling is now in position to be coupled and automatically locked. When the cars are brought together, the tailpiece is thrown back into the coupling-head, and the locking-pin and dog ride along on the upper side of the tailpiece, the pointed end of the dog engaging the vertical side of the shoulder E until the socket C registers substantially with the opening c in the coupling-head, whereupon the locking-pin will immediately fall by gravity into the socket, and the coupling is thereby automatically locked.

I am aware that changes in the form and proportion of parts and details of construction of my invention may be made without departing from the spirit and without sacrificing the advantages thereof, and I would therefore have it understood that I reserve the right to make all such changes as fairly fall within the scope and spirit of my invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a car-coupling, the combination of a coupling-head, a knuckle pivotally supported therein and provided with a tailpiece, and a locking device adapted to be supported after it is raised into an unlocked position and automatically arranged in position upon the tailpiece for locking as the tailpiece swings outward when the coupling is uncoupled, substantially as described.

2. In a car-coupling, the combination of a coupling-head, a knuckle pivotally supported therein and provided with a tailpiece, a locking device adapted to engage the tailpiece to lock the coupling, and means carried by said locking device arranged to support the locking device upon the tailpiece after it is raised into an unlocked position and automatically throw the locking device, when the tailpiece swings outwardly, into position upon the tailpiece for automatically locking the coupling again when the tailpiece resumes its normal position within the coupling-head, substantially as described.

3. In a car-coupling, the combination of a coupling-head, a knuckle pivotally supported therein and provided with a tailpiece, a locking-pin adapted to enter a socket in the tailpiece to lock the coupling, and a dog pivotally secured in a slot in said locking-pin and adapted to swing into position to support the locking-pin upon the upper face of the tailpiece when the locking-pin is raised into an unlocked position, whereby said locking-pin is arranged in position to be supported upon the tailpiece when the latter is swung outwardly, substantially as described.

4. In a car-coupling, the combination of a coupling-head, a knuckle pivotally supported therein and provided with a tailpiece, a shoulder E upon the upper face of the tailpiece, a locking device adapted to engage the tailpiece to lock the coupling, and a dog carried by said locking device and adapted to engage the shoulder when the locking device is raised into an unlocked position to support the locking device on the upper face of the tailpiece, substantially as described.

5. In a car-coupling, the combination of a coupling-head, a knuckle pivotally supported therein and provided with a tailpiece having a shoulder thereon, a locking device adapted to engage the tailpiece to lock the coupling and provided with a slot, and a dog pivotally secured in said slot and adapted to engage the

shoulder on the tailpiece when the locking device is raised into an unlocked position, substantially as described.

6. In a car-coupling, the combination of a coupling-head, a knuckle pivotally supported therein and provided with a tailpiece having a shoulder thereon, a locking device adapted to lock the coupling and having a slot in the lower portion thereof, and a dog pivotally secured in said slot and having a weighted end, said dog being adapted to engage the shoulder of the tailpiece when the locking device is raised substantially as and for the purposes described.

7. In a car-coupling, the combination with a coupling-head, a knuckle pivotally supported therein and provided with a tailpiece having a shoulder thereon, a gravity-pin adapted to engage a socket in the tailpiece to lock the coupling and having a slot in the lower portion thereof, and a dog pivotally secured in said slot and having a pivoted end adapted to engage the shoulder of the tailpiece and a weighted end to normally hold the pointed end in a position beyond the walls of the slot, substantially as described.

8. In a car-coupling, the combination of a coupling-head, a locking device arranged in said coupling-head, a dog carried by said locking device, a knuckle pivotally supported in the coupling-head and provided with a tailpiece, a shoulder on said tailpiece adapted to be engaged by the dog when the locking device is raised into an unlocked position, and a cam-face adjacent to the shoulder adapted to disengage the dog from the shoulder as the tailpiece swings outward into an open position, substantially as described.

9. In a car-coupling, the combination of a coupling-head, a gravity locking device arranged therein and carrying means for supporting the same in an unlocked position, a knuckle pivotally supported in the coupling-head and provided with a tailpiece, a shoulder on said knuckle adapted to be engaged by said supporting means, and means for releasing said supporting means from engagement with the shoulder as the tailpiece swings out of its normally-locked position in the coupling-head and automatically arranging said locking device in position for locking the coupling when the tailpiece is again swung back into the coupling-head, substantially as described.

10. In a car-coupling, the combination of a coupling-head, a gravity locking-pin operating therein and provided with a slot in its lower portion, a dog pivotally secured in said slot and provided with a pointed end and a weighted end, a knuckle pivoted in the coupling-head, a tailpiece provided with a socket to receive the locking-pin, a shoulder on said tailpiece, and a cam-face adjacent to the shoulder adapted to release the pointed end of the dog from engagement with the shoulder as the tailpiece swings out of the coupling-head and throw the said pointed end of the dog into engagement with the vertical side of the shoulder so that the locking-pin will enter the socket in the tailpiece when the latter is swung back into the coupling-head, substantially as described.

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